

CLAIMS

1. A power cable comprising a conductive material core and at least one covering layer, characterized in that said layer is constituted essentially of a material comprising an inorganic compound of sheet structure and an organic compound inserted between the layers of said inorganic compound.

2. A power cable according to claim 1, wherein said inorganic compound is an inorganic oxide.

3. A power cable according to claim 2, wherein said inorganic oxide is clay chosen from kaolin, smectite, montmorillonite, bentonite, beidellite, nontronite, saponite, hectorite, vermiculite, wollastonite or a mixture thereof.

4. A power cable according to claim 3, wherein said clay is chosen from montmorillonite and bentonite.

5. A power cable according to ^{claim 1} ~~any preceding claim~~, wherein said organic compound is a polymer, a monomer or an oligomer.

6. A power cable according to claim 5, wherein said polymer is chosen from a polyolefin, polybutylene terephthalate, a vinyl polymer, an elastomer, silicone, their copolymers and a mixture thereof.

7. A power cable according to claim 5, wherein said polymer is chosen from an epoxy resin, polyester, polyamide, polyimide, polyetherimide, polyamidimide, polyurethane, silicone or a mixture thereof.

8. A power cable according to ^{claim 1} ~~any preceding claim~~, wherein the covering layer comprises an insulative material layer constituted essentially of a material

comprising an inorganic compound of sheet structure and an organic compound inserted between [the layers of said inorganic compound.]

claim 1

9. A power cable according to ~~any preceding claim~~ wherein [the covering layer] comprises an external covering layer constituted essentially of a material comprising an inorganic compound of sheet structure and an organic compound inserted between [the layers of said inorganic compound.]

10. A medium-voltage to high-voltage direct current power cable according to ~~any of claims 1 to 7~~, wherein [the covering layer] comprises at least one semiconductor screen, characterized in that [the semiconductor screen] is constituted essentially of a material comprising an inorganic compound of sheet structure and an organic compound inserted between the layers of said inorganic compound.

11. A method of fabricating a power cable according to ~~any preceding claim~~, including the production of said material by the following steps:

- treating said inorganic compound with an agent to render it compatible with said organic compound,

- mixing the treated inorganic compound with said organic compound at a temperature higher than the temperature at which said organic compound softens or melts, and

- obtaining said material with said organic compound inserted between the layers of said inorganic compound.

12. A method according to claim 11, wherein said inorganic compound is clay and said compatibilizing agent is chosen from a quaternary ammonium salt, and an oxide of polyethylene and a phosphorus-containing derivative.